Metallo-β-lactamases Detection In Carbapenem Resistant Klebsiella pneumonia and Their Role In Nosocomial Infections

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Backgrond & Objective: Metallo-β-lactamase producing *Klebsiella pneumoniae* are common causes of Nosocomial infections and their spread suggest a significant threat to human health, so do not leave any option for treatment of serious infections. The most popular family of MBLs includes VIM, IMP, GIM, SIM, and SPM enzymes. New MBL, NDM-1, has recently been reported in studies. The aim of this study is survey of presence Metallo-β-lactamases in *Klebsiella pneumoniae* isolates resistant to carbapenem and introducing new resistant isolates from the indiscriminate use of antibiotics .

Methods: Theisolates from various clinical specimens was used for antibiotic resistance to common antibiotics in the treatment by Kirby-Bauer methods. More than two antibiotic-resistant isolates were considered as strains with multiple drug resistance (MDR) and isolates with resistant to imipenem and meropenem were selected to investigate the production of MBLs by E.test MBL strips. MIC reduction in the presence of EDTA equal to or greater 8 (IP / IPI $\geqslant$ 8) showed MBL activity.

Results: Total of 287 isolates collected from clinical specimens, 225 isolates were resistance to more of 2 antibiotics of different classes and 6 isolates had total resistance. 7isolates resistant to imipenem and meropenem are studied to presence of MBLs by E-test Methods that of which 5 isolates were positive. MBL-producing isolates genome extracted and was studied base on specific primers for MBL genes.

Conclusion: The presence of MBLs in *Klebsiella pneumoniae* isolates shows over use of beta-lactam antibiotics in nosocomial infections and it can increase t resistance type and the emergence new subtypes.

Keywords: Metallo-β-lactamase; Multiple Drug Resistance; Carbapenem